FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	M123752	Client:	Alaskan Copper Works
Date Received:	10/22/09	Project:	Metro Self Monitor, PO M123752
Date Extracted:	10/27/09	Lab ID:	910216-01 x10
Date Analyzed:	10/27/09	Data File:	910216-01 x10.045
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	btb

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	97	60	125

Analyte:	Concentration ug/L (ppb)
Chromium	482
Nickel	372
Copper	408
Zinc	28.8

Analysis For Total Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	Alaskan Copper Works
Date Received:	Not Applicable	Project:	Metro Self Monitor, PO M123752
Date Extracted:	10/27/09	Lab ID:	I9-455 mb
Date Analyzed:	10/27/09	Data File:	I9-455 mb.009
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	btb

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	101	60	125
Indium	99	60	125
Holmium	101	60	125

Analyte:	Concentration ug/L (ppb)
Chromium	<1
Nickel	<1
Copper	<1
Zinc	<2

Date of Report: 10/29/09
Date Received: 10/22/09
Project: Metro Self Monitor, PO M123752, F&BI 910216

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL METALS USING EPA METHOD 200.8

Laboratory Code: 910214-01 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	Relative Percent Difference	Acceptance Criteria
Chromium	ug/L (ppb)	34.1	31.3	9	0-20
Nickel	ug/L (ppb)	4.17	3.66	13	0-20
Copper	ug/L (ppb)	1.07	<1	nm	0-20
Zinc	ug/L (ppb)	8.98	5.51	48 a	0-20

Laboratory Code: 910214-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Chromium	ug/L (ppb)	20	34.1	75 b	50-150
Nickel	ug/L (ppb)	20	4.17	88 b	50-150
Copper	ug/L (ppb)	20	1.07	89	50-150
Zinc	ug/L (ppb)	50	8.98	84	50-150

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Chromium	ug/L (ppb)	20	98	70-130
Nickel	ug/L (ppb)	20	99	70-130
Copper	ug/L (ppb)	20	99	70-130
Zinc	ug/L (ppb)	50	94	70-130

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

A1 – More than one compound of similar molecule structure was identified with equal probability.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for this range fell outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte indicated may be due to carryover from previous sample injections.

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - The analyte indicated was found in the method blank. The result should be considered an estimate.

fc – The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. The variability is attributed to sample inhomogeneity.

ht - The sample was extracted outside of holding time. Results should be considered estimates.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j – The result is below normal reporting limits. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the compound indicated is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc – The sample was received in a container not approved by the method. The value reported should be considered an estimate.

pr – The sample was received with incorrect preservation. The value reported should be considered an estimate.

ve - The value reported exceeded the calibration range established for the analyte. The reported concentration should be considered an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The pattern of peaks present is not indicative of diesel.

y - The pattern of peaks present is not indicative of motor oil.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Charlene Morrow, M.S.
Yelena Aravkina, M.S.
Bradley T. Benson, B.S.
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Seattle, WA 98119-2029
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DUPLICATE

October 29, 2009

INVOICE #09ACU1029-1

Accounts Payable
Alaskan Copper Works
628 South Hanford
Seattle, WA 98134

RE: Project Metro Self Monitor, PO M123752, F&BI 910216 - Results of testing requested by Gerry Thompson for material submitted on October 22, 2009.

1 sample analyzed for Total Chromium, Copper, Nickel and Zinc by Method 200.8 @ $85 per sample	$ 85.00
Rush Charges (4 day) 60% of $85.00	51.00
Amount Due	$ 136.00

FEDERAL TAX ID # (b) (6)

910216

SAMPLE CHAIN OF CUSTODY ME 10/22/09 AIY

Send Report To Gerry Thompson

Company Alaskan Copper Works

Address 628 South Hanford

City, State, ZIP Seattle, WA 98134

Phone # 382-8379 Fax # 382-4309

SAMPLERS (signature)

PROJECT NAME/NO. METRO self monitor (Grad)

PO # M123752

REMARKS

Page # ____ of ____

TURNAROUND TIME
- ☐ Standard (2 Weeks)
- ☒ RUSH 4 day
- Rush charges authorized by:

SAMPLE DISPOSAL
- ☒ Dispose after 30 days
- ☐ Return samples
- ☐ Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	Cr, Cu, Ni & Zn												Notes
M123752	01	10/22/09		H2O	1	X												

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		MATT Crowley	ACW	10/22/09	2:15
Received by:		Nhan Phan	FEBI	10/22/09	V
Relinquished by:					
Received by:					

Samples received at 17 °C

AKC-0005317

FRIEDMAN & BRUYA, INC.

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October 29, 2009

Gerry Thompson, Project Manager
Alaskan Copper Works
628 South Hanford
Seattle, WA 98134

Dear Mr. Thompson:

Included are the results from the testing of material submitted on October 22, 2009 from the Metro Self Monitor, PO M123752, F&BI 910216 project. There are 4 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
ACU1029R